

CLAIMS

1. Use of compounds of formula R-X wherein X is a primary alcoholic functional group  $-\text{CH}_2\text{OH}$ , a carboxylic functional group  $-\text{COOH}$  or a  $\text{C}_1\text{-C}_4$  alkyl ester group, and of mono-, di- and tri-glycerides of acid compounds R-COOH and of pharmaceutically acceptable salts of those acids, wherein R is a hydrocarbon chain having from 23 to 35 carbon atoms, which is saturated or unsaturated, including from one to five ethylenic or acetylenic unsaturations, linear or branched, including from one to five methyl branches, and optionally substituted by from one to three hydroxyl groups, for the preparation of pharmaceutical or nutraceutical compositions useful for the treatment and prevention of pathologies related to a high concentration of cholesterol and lipids, and pathologies associated with an increased ability of blood platelets to aggregate and with a reduced concentration of oxygen.

2. Use of compounds of formula R-X wherein X is a primary alcoholic functional group  $-\text{CH}_2\text{OH}$ , a carboxylic functional group  $-\text{COOH}$  or a  $\text{C}_1\text{-C}_4$  alkyl ester group, and of mono-, di- and tri-glycerides of acid compounds R-COOH and of pharmaceutically acceptable salts of those acids, wherein R is a hydrocarbon chain having from 19 to 35 carbon atoms, which is saturated or unsaturated, including from one to five ethylenic or acetylenic unsaturations, linear or branched, including from one to five methyl branches, and optionally substituted by from one to three hydroxyl groups for the preparation of pharmaceutical or nutraceutical compositions useful for the treatment and prevention of peripheral vascular diseases and peripheral neuropathies.

3. Use of compounds as defined in claim 1, for the preparation of pharmaceutical or nutraceutical compositions useful in the treatment or prevention of atherosclerosis, hypercholesterolaemia, cardiovascular diseases of the ischaemic or

atherosclerotic type, peripheral vascular diseases and peripheral neuropathies.

4. Use of compounds according to claim 1, for the preparation of pharmaceutical or nutraceutical compositions useful in the treatment of ageing processes in humans, in particular cerebral ageing and degenerative brain diseases.

5. Use of compounds according to claim 1, for the preparation of pharmaceutical or nutraceutical compositions useful for restoring the membrane fluidity of ghost cells and blood platelets.

6. Use of compounds according to claim 1, for the preparation of compositions of nutritional integrators aimed at weight loss, the prevention and treatment of cellulite, the strengthening of muscle and the improvement of physical fitness in humans and animals.

7. Use of compounds according to claim 1, for the preparation of cosmetic compositions useful in the treatment and prevention of skin damage caused by free radicals.

8. Use according to any one of claims 1 to 7, wherein the compounds comprise from 25 to 31 carbon atoms.

9. Use according to any one of claims 1 to 7, wherein the compounds are of the general formula  $R_2 = R_1-X$ , wherein X has the meaning defined above and wherein  $R_1$  and  $R_2$  have a total of from 23 to 35 carbon atoms, preferably from 25 to 31 carbon atoms, and  $R_1$  is a saturated linear hydrocarbon chain having from 4 to 15 carbon atoms and  $R_2$  is a hydrocarbon chain having from 8 to 22 carbon atoms which is saturated or unsaturated, including from one to four ethylenic or acetylenic unsaturations, linear or optionally branched, including from one to four methyl branches, and optionally substituted by from one to three hydroxyl groups.

10. Use of compounds as defined in claim 9, wherein  $R_1$  is a hydrocarbon chain having from 7 to 13 carbon atoms and  $R_2$  is a hydrocarbon chain having from 10 to 20 carbon atoms.

11. Use according to claim 9 or 10, wherein  $R_1$  is a linear hydrocarbon chain having 9 carbon atoms and  $R_2$  is the chain of a saturated or unsaturated naturally occurring fatty acid.

12. Use according to claim 10, wherein  $R_2$  is a hydrocarbon chain of oleic, linoleic, linolenic, ricinoleic or farnesyllic acid.

13. Compounds of the general formula  $R_2=R_1-X$ , wherein X is a primary alcoholic functional group  $-CH_2OH$ , a carboxylic functional group  $-COOH$  or a  $C_1-C_4$  alkyl ester group, wherein  $R_1$  and  $R_2$  have a total of from 23 to 35 carbon atoms and  $R_1$  is a saturated linear hydrocarbon chain having from 4 to 15 carbon atoms and  $R_2$  is a hydrocarbon chain having from 8 to 22 carbon atoms which is saturated or unsaturated, including from one to four ethylenic and/or acetylenic unsaturations, linear or optionally branched, including from one to four methyl branches, and optionally substituted by from one to four hydroxyl groups, their pharmaceutically acceptable salts and mono-, di- and tri-glycerides of acids  $R_2 = R_1-COOH$ .

14. Compounds according to claim 13, wherein  $R_1$  is a hydrocarbon chain having from 7 to 13 carbon atoms and  $R_2$  is a hydrocarbon chain having from 10 to 20 carbon atoms.

15. Compounds according to claim 13 or 14, wherein  $R_1$  is a saturated linear hydrocarbon chain having 9 carbon atoms.

16. Compounds according to any one of claims 12 to 15, wherein  $R_2$  is the hydrocarbon chain of a naturally occurring fatty acid.

17. Compounds according to claims 13 to 16, selected from the

group consisting of:

- octacos-10,19-dienoic acid,
- octacos-10,19,22-trienoic acid,
- octacos-1,19,22,25-tetraenoic acid,
- 14,18,22-trimethyltricos-10,13,17,21-tetraenoic acid,
- corresponding primary alcohols, and
- C<sub>1</sub>-C<sub>4</sub> alkyl ester of those acids.

18. Compounds according to claim 17, in the form of the ethyl ester.

19. Pharmaceutical, nutraceutical, dietetic integrator or cosmetic compositions including a compound as defined in claims 1, 8 or 13 to 18 in association with anti-oxidant vitamins, carnitine or its alkanoyl derivative.